

Claims

floor panel structured to avoid pooling

Claim 1. Cage apparatus for transporting live poultry, wherein:
the apparatus includes a support framework, being of metal

components including metal uprights and members, fixed
together into an open rectangular configuration, which is of
such length, width, and height, that several of them can be
stacked two high on a truck;

the framework is so arranged as to define poultry-receiving trays,
which are arranged in a plurality of rows of trays, and a
plurality of columns of trays;

the trays have respective floor panels, left and right side panels,
roof panels, rear closure panels, and front doors, which
together define respective rectangular chambers inside the
trays;

the rectangular chambers are so configured as to be suitable for
receiving several poultry birds per tray;

some of the panels of each tray are of open lattice form, having
openings of such large size and configuration that the chamber
inside the tray can be characterised as light and well-
ventilated, the openings being also of such small size and
configuration as substantially to prevent the protrusion of
body parts of the birds outside the tray;

in respect of each tray, the floor panel thereof is a panel of
plastic, which extends from the front to the rear, and from
the left side to the right side, of the tray chamber;

in respect of each tray, with the several poultry birds contained
therein, the floor panel thereof is of such form and
robustness, and is so mounted in the support framework, that
water entering the tray substantially cannot form pools, over
any portion of the upper surface of the floor panel with which
the birds can come into contact.

floor panel is domed

Claim 2. Apparatus of claim 1, wherein the floor panel has a middle area, and front and rear end areas, and the floor panel is domed, in that the middle area lies at least 0.7" higher than a line joining the front and rear end areas.

floor panel has slits

Claim 3. Apparatus of claim 1, wherein the floor panel is formed with drainage slits, which are wide enough to permit liquids on the upper surface of the floor panel to drain through the floor panel, and are narrow enough to resist snagging the feet of birds.

floor panel is a one piece moulding, strong enough not to sag

Claim 4. Apparatus of claim 1, wherein each floor panel is a one piece moulding, and the support framework includes means for supporting each floor panel at the front thereof, at the rear, and in the middle, the floor panel being rigid enough that, when so supported, deflection of the floor panel due to the weight of birds thereon is not enough to create pooling.

Claim 5. Apparatus of claim 1, wherein the said weight of poultry on the floor panel is of the order of a hundred pounds.

in the trays, birds contact plastic, not metal

Claim 6. Cage apparatus for transporting live poultry, wherein: the apparatus includes a support framework, being of metal

components including metal uprights and cross-members, fixed together into an open rectangular configuration, which is of such length, width, and height, that several of them can be stacked two high on a truck;

the framework is so arranged as to define poultry-receiving trays, which are arranged in a plurality of rows of trays, and a plurality of columns of trays;

the trays have respective floor panels, left and right side panels, roof panels, rear closure panels, and front doors, which together define respective rectangular chambers inside the trays;

the rectangular chambers are so configured as to be suitable for receiving several poultry birds per tray;

some of the panels of each tray, other than the floor panel, are of open lattice form, having openings of such size and configuration that the chamber inside the tray can be characterised as light and well-ventilated, the panels and door being also of such size and configuration as substantially to prevent the protrusion of body parts of the birds outside the tray; and

the panels and the door of each tray are of plastic, to the extent that birds housed within the tray can rest in contact with only plastic material, and substantially cannot rest in contact with the said metal components.

fence panels held in place by floor panels

Claim 7. Apparatus of claim 6, wherein:

the apparatus includes a fence panel, which is a one-piece plastic moulding, of such height as to extend from top to bottom of the cage;

the fence panel is arranged to form a vertical wall for all the trays forming one column of trays;

the vertical fence panel is so arranged in relation to the uprights of the support framework as to be prevented from falling outwards relative to the cage by engagement with the said uprights;

the vertical fence panel is so arranged in relation to the floor panels of the trays in the column of trays as to be prevented from falling inwards relative to the cage by engagement with the said floor panels, whereby, but for the presence of the floor panels, the fence panel would fall inwards.

fence panels protected by framework

Claim 8. Apparatus of claim 6, wherein:

the fence panel is of rectangular form, having top, bottom, left, right edges;

substantially no points on the said edges protrude out from the support framework;

substantially all points on the said edges lie so close against the uprights and cross-members of the support framework as to be protected thereby from contact with solid objects outside the cage.

Claim 9. Apparatus of claim 6, wherein the fence panels are of the said lattice form, the openings being defined by ribs, and being configured as deep, wide open boxes.

flushing ports

Claim 10. Apparatus of claim 6, wherein at a vertical location of the fence panel that lies just above one of the floor panels, the ribs defining the boxes are spaced vertically further apart than at other vertical locations of the fence panel, the wider spacing being such as to define a flushing port, to allow debris washed from inside the tray to be flushed out therethrough.

door with double-detent cam

Claim 11. Apparatus including an openable door, wherein:

the apparatus includes a support framework, including spaced-apart hinge-supports;

the apparatus includes bearings, arranged in the hinge-supports to guide the door for hinging rotation about a hinge-axis straddling between the hinge-supports, between an open position and a closed position;

the apparatus includes inter-acting cam faces, being a door-cam-face which is rotationally fast with the door, and a frame-cam-face

which is rotationally fast with one of the hinge-supports;
the bearings are so structured that the said two cam faces can move axially relatively, and the cam faces are so structured as to remain in camming engagement during such axial movement;
the apparatus includes a spring, arranged to bias the cam faces towards each other;
the inter-acting cam faces are formed with respective complementary door-opening cam-slopes and respective complementary door-closing cam-slopes, these cam-slopes being so angled that axial movement of the cam faces is correspondingly accompanied by rotational movement of the door;
the cam-slopes are so arranged that, when the door is rotated away from its closed position, at first the door-closing cam-slopes engage, and the spring biases the door to rotate back towards its closed position, but when the door is rotated still further away from its closed position, the cam-slopes go over-centre, whereby the door-closing cam-slopes disengage and the door-opening cam-slopes engage, and whereby the spring biases the door now to rotate towards its open position.

different cam angles for open / closed

Claim 12. Apparatus of claim 11, wherein:

the door-opening cam-slopes are steeper than the door-closing cam-slopes;

whereby the spring-induced door-closing force is greater than the spring-induced door-opening force.

open and closed stop-faces have zero slope

Claim 13. Apparatus of claim 11, wherein

the inter-acting cam faces are formed with respective complementary door-open stop-faces and respective complementary door-closed stop-faces;

these stop-faces are so placed as to define the door-closed and door-open positions of the door;

the stop-faces lie in respective planes that lie substantially radially and axially relative to the hinge-axis.

cam is small diameter

Claim 14. Apparatus of claim 11, wherein the cam faces are confined within a circumscribing circle, centred on the hinge axis, having a diameter of less than two inches.

rubbing surfaces are drained

Claim 15. Apparatus of claim 11, wherein the surfaces of the cam that rub over each other during rotation of the door are provided with drainage channels, arranged so that water penetrating between the said surfaces cannot collect and remain therebetween, but drains away.

Claim 16. Apparatus of claim 11, wherein the spring is a compression coil spring, concentric with the hinge axis.